Volunteer Lake Assessment Program Individual Lake Reports

ASHUELOT POND, WASHINGTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	16,000	**Max. Depth (m):**	7.8	**Flushing Rate (yr^{-1}):**	12.5
Surface Area (Ac.):	299	**Mean Depth (m):**	2	**P Retention Coef:**	0.45
Shore Length (m):	8,400	**Volume (m^3):**	2,892,000	**Elevation (ft):**	1445

TROPHIC CLASSIFICATION

Year	Trophic class
1986	MESOTROPHIC
2004	MESOTROPHIC

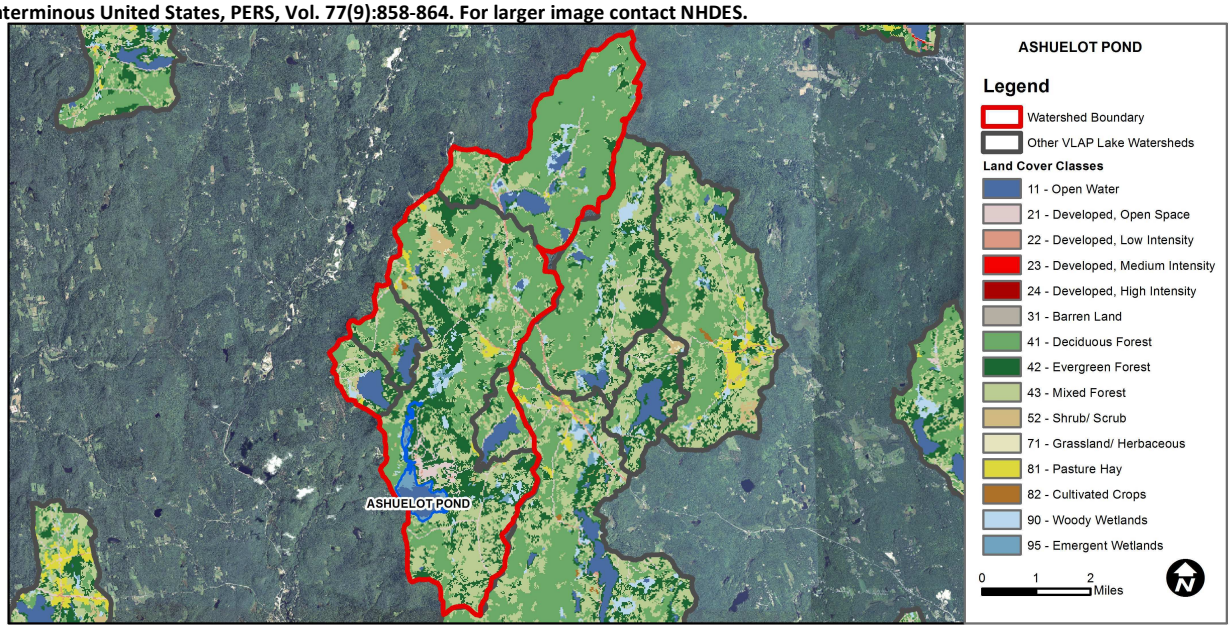
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.63	Barren Land	0.05	Grassland/Herbaceous	0.09
Developed-Open Space	2.73	Deciduous Forest	41.1	Pasture Hay	0.86
Developed-Low Intensity	0.37	Evergreen Forest	19.28	Cultivated Crops	0.1
Developed-Medium Intensity	0	Mixed Forest	24.47	Woody Wetlands	2.59
Developed-High Intensity	0	Shrub-Scrub	1.17	Emergent Wetlands	1.54

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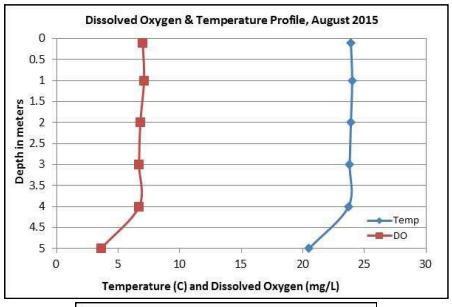
Ashuelot Pond, Washington

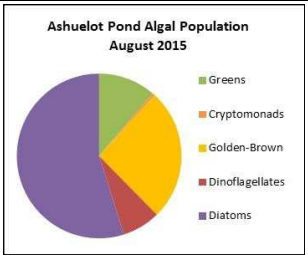
2015 Data Summary

Recommended Actions: The improving and stable water quality trends are a great sign and we hope to see this continue. Water quality is average for most NH lakes and indicative of mesotrophic conditions. The slightly elevated phosphorus and turbidity at Millen Inlet following a significant storm event indicates areas of erosion upstream. A dirt road likely contributes sediment to the stream following storm events. It is recommended to address the erosion to minimize nutrients and sediments entering the stream and lake. The U.S. Forest Services' "Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads" may be a good resource. Keep up the great work!

Observations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were low in June and then increased to slightly elevated levels from July through September. Average chlorophyll levels increased from 2014 and were greater than the state median however historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- **Conductivity/Chloride:** Deep spot and tributary conductivity and chloride levels remained low and less than the state medians. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity since monitoring began. We hope to see this continue!
- **E. coli:** Beach E. coli levels were very low and much less than the state standard 88 cts/100 mL for public beaches.
- **Total Phosphorus:** Epilimnetic phosphorus was average from June to July, increased to slightly elevated levels in August, and then decreased in September. Average epilimnetic phosphorus levels increased in 2015 and were slightly greater than the state median which likely led to the slight increase in algal growth. However, historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue! Hypolimnetic (lower water layer) phosphorus decreased slightly from July through September and was within an average range for this station. Marina Inlet, River Inlet and Outlet phosphorus levels were within average ranges and Millen Inlet phosphorus was slightly elevated in July following a significant storm event.
- **Transparency:** Transparency was good in June, decreased in July and August with the slightly elevated algal growth, and then increased (improved) slightly in September during calm conditions. Average transparency improved slightly from 2014 but was slightly less than the state median. Historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Deep spot turbidity was slightly above average on each sampling event potentially due to the slightly elevated algal growth in 2015. Marina Inlet, Outlet and River Inlet turbidities were also slightly above average in 2015 potentially due to the dry weather and low flow conditions. Millen Inlet turbidity was elevated in July following a significant storm event indicating potential erosion upstream.
- **pH:** Epilimnetic pH was the best measured since monitoring began, however deep spot and tributary pH levels remained less than the desirable range 6.5-8.0 units. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.





Station Name	Table 1. 2015 Average Water Quality Data for ASHUELOT POND									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
Epilimnion	2.3	5.83	3	27.6		13	2.95	3.00	1.86	6.11
Hypolimnion				27.6		13			1.91	5.66
LAE Beach Shallow					9					
Marina Inlet				31.6		11			1.36	5.76
Millen Inlet				27.2		13			1.71	5.76
Outlet				26.8		11			1.63	5.94
River Inlet				33.3		12			1.26	5.85

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.